Dimitrios V. Siskos

Detecting Financial Reporting Fraud – Lessons learned by Enron Corp.

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This paper is submitted in partial fulfillment of the requirements for Investment, Taxation and Fraud

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Detecting Financial Reporting Fraud – Lessons learned by Enron Corp.

Siskos V. Dimitrios

Swiss Management Center (SMC) University
February 4, 2014

Abstract

Manipulations with the financial statements have become a common element of the corporate financial life. As such, Enron’s failure in 2001 represents the biggest business bankruptcy ever while also spotlighting the inefficiency of detecting financial fraud in the early stages. Particularly, the financial statements in Enron Corp. were made up and all loses were hidden and covered by the accountants. Enron’s collapse led employees and investors into failure, while most of the company’s executives were accused for fraud and some of them went to prison. Using the financial statements filed by Enron in the U.S. SEC Edgar database and employing tools such as Altman’s Z-score, the Beneish model as well as nonfinancial measures, this paper aims to determine whether Enron’s fraud could have been detected sooner. The paper concludes that all ratios indicate that Enron’s difficulties were apparent a lot earlier than 2001. These ratios aren't silver bullets but did prove to be consistent indicators of financial fraud problems. Enron failed but its lessons will long endure.

Keywords: Enron, bankruptcy, fraud, Altman, z-score, Beneish, predictability, financial distress, financial statements.
Introduction

All organizations are subject to fraud risks as long as the typical organization loses 5% of its annual revenue to fraud (Association of Certified Fraud Examiners, 2010). In a global scale, the effects of fraud actions are extremely high. Particularly, financial fraud costs the global economy some USD$ 2.9 trillion on an annual basis (Obiri, 2011), and it is considered being on the increase (Klapproth, 2011, p3); fuelled by the recent global financial crisis (Kroll, 2009/2010).

Large frauds are the cause for many business collapses and the downfalls of entire organizations, while publicized fraudulent behavior by key executives has negatively impacted the reputations, brands, and images of many organizations around the world. However, the detection of a potential fraud usually last many years. According to a report on Fraud issued by Deloitte Forensic Center in 2008, the average discovery time for the manipulations with financial statements is 4.7 years and the longest lasting fraud was perpetrated over the span of 18 years.

Such fraudulent activities perpetrated inside Enron Corp. at the late 1990s, and eventually led company into the biggest corporate bankruptcy (2001) in the history of United States of America at the time. Several key top executives of the company involved in that latent fraud which, according to analysts, drifted to the collapse one of the then biggest five (5) accountancy/audit firms¹ in the world (Denteh, 2011).

History

Enron Corp. was formed in 1985 from a merger of Houston Natural Gas and Internorth and was almost universally considered as one of the country’s most innovative companies. The company started as the first natural gas pipeline network but in an attempt to achieve further growth, Enron pursued a diversification strategy. Particularly, its focus shifted from the regulated transportation of natural gas to unregulated energy trading markets (Azadinamin, 2012). This meant that the company worked to guarantee agreed prices for the

---

¹ Arthur Andersen LLP, based in Chicago, is a holding company and formerly one of the "Big Five" accounting firms among PricewaterhouseCoopers, Deloitte Touche Tohmatsu, Ernst & Young and KPMG.
commodities (oil, gas and electricity) for delivery in the future (Denteh, 2011). Enron also diversified into other business ventures, including pulp and paper plants, broadband assets and water plants.

The new reality in gas business, coming up by the Reagan Administration’s deregulation, eliminated price controls and free contracting was allowed for pipeline and gas businesses (Kroger, 2004). As such, Enron took advantage of that fact becoming ‘middleman’ in transactions that occurred between the producers and users of gas, increasing its revenues in the highest level. At that time the performance of Enron was amazing, reporting US138.7 billion in revenues for the first nine months of 2001, and placing Enron at the sixth position on the Fortune Global 500 (Denteh, 2011). However, Kroger (2004) states that the decision to diversify in an aggressively way, was a contributory factor to Enron’s collapse because, the company’s main experience was in natural gas and although it was crucial to Enron to use that experience for its diversified business; it did not.

**Enron Fraud**

In order to seem creditworthy and reputable in the Energy futures market, Enron senior management manipulated the accounting records to make it look like they made a lot more money than they actually did. In fact, the executives of Enron indulged in a lot of tips to hide Financial Statement’s red flags. Particularly, they hid borrowings coming up by the fact that the diversified conglomerate was making a lot less money than it was spending, as illustrated by the Appendix 1. Indeed, Enron had excluded its partnerships with Chewco and Joint Energy Development Investments from its consolidated financial statements. By keeping the $600-million debt associated with these partnerships off of the balance sheet, Enron had been able to maintain its strong credit rating and share price (Bansal and Kandola, 2003). Moreover, Enron adopted another tip to hide real debt on its balance sheets, as it offered futures transaction equivalent to the debt amount and later bought them back within a year paying a small percentage in interest (Smith, 2011).
In addition to the above, Enron used tax havens to ‘hide’ financing affiliations with SPEs\(^2\) and gave out company shares freely to executives, recording the transaction as equity (Reinstein & Weirich, 2002). Cohan (2002) explains that Enron management, also, hid the truth even to its employees of the company as it was important for them to believe the hype as it was for the analysts and investors.

The last chance for Enron to overcome this difficult situation was the potential deal with Dynegy, a much smaller competitor energy company, which could resulted in one of the biggest energy trading companies in the world, according to Lehrer (2002). However, the merger talks collapsed when major credit rating agencies lowered Enron’s credit status, resulting in an immediate need for repayment of the huge accumulated but hidden debts (Azadinamin, 2012).

The fraud was a disaster for:

- The employees, who lost their job and their life-time savings;
- The shareholders, who lost billions of dollars of their investment;
- The general public, who experienced a shock and loss of confidence in investment to some significant extent.

On the other hand, the fraud was not such a disaster for some of the top executives of Enron, as they gained significantly, by disposing of most of their shares in Enron in advance of the collapse (Denteh, 2011). At the end, most of them were processed in courts, as they indicted for several fraudulent activities, and several of them were then sentenced to prison (see Appendix 2).

**Enron – Corporate Social Responsibility issues**

The fall of energy broker Enron Corp. has been described as the biggest business surprise since the beginning of the 21\textsuperscript{st} century. It was a surprise which unexpectedly left 20,000 employees in a deeply compromised safety of their pension funds (Petrache, 2009). Moreover, Enron was building a number of oil-

---

\(^2\) A Special Purpose Entity is a company that is created by a parent company, usually to carry out a specific, limited purpose, such as the securitization of a set of assets.
fired plants (not natural gas) around the world; that was one of Enron’s dirty secrets. However, given that CSR hypocrisy is very common through profit motivated companies, Enron tried to develop a CSR driven profile, publishing a social and environmental report, which looked at the moves it was taking with regard to its environmental impact, its employee relations, its anti-corruption and bribery policies, and its community relations programs (Baker, 2007).

Generally, Enron's and Arthur Andersen's actions were unquestionably irresponsible as the accounting practices that they applied within the company, clearly misled shareholders, analysts and creditors (Bansal and Kandola, 2003). This paper aims, inter alia, to determine all the unethical actions and dirty secrets that were absent from Enron’s annual 10K reports and prove that the financial fraud could have been identified earlier.

Discussion of the facts and issues

The Financial Statements

As known, the financial statements reflect the financial effects of business transactions and events on the entity during a fiscal year. The financial statements are constituted by (4) four segments:

1. Statement of Financial Position
2. Income Statement
3. Cash Flow Statement
4. Statement of Changes in Equity

3 The auditor of Enron was found guilty in a United States District Court, lost the majority of its customers and closed.

4 It presents the financial position of an entity at a given date.

5 It is a simple and straightforward report on a business' cash-generating ability.

6 It is a summary of the actual incomings and outgoings of cash in a firm over an accounting period.

7 It summarizes the movement in the equity accounts during the year namely share capital, share premium, etc.
The above statements are perfectly correlated to each other, representing a realistic picture of the company’s performance, position and the overall health of the business. If this is not apparent in the financial statements, then this might provides an initial indication of possible financial fraud.

**Could the Enron Fraud have been detected sooner?**

Using the guidelines provided by Altman’s Z-score, Beneish, etc., as well as by Nonfinancial Measures, the paper will attempt to determine how soon Enron’s Fraud could have been determined.

**Altman’s Z-score**

Altman Z-Score is created to gauge the corporate health. Therefore it uses two important net indicators, such as Net Sales and Working Capital, which clearly show the financial position of a firm in terms of its robustness and solvency (Pustylnick, 2009). As prerequisite before using Z score formula is to extract figures from Enron’s financial statements as filed with the U.S. SEC Edgar database, as exhibited in table 1 below.

<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Current assets</td>
<td>0.27</td>
<td>0.39</td>
<td>0.20</td>
<td>0.24</td>
<td>0.28</td>
<td>0.33</td>
</tr>
<tr>
<td>Current Liabilities</td>
<td>0.30</td>
<td>0.37</td>
<td>0.22</td>
<td>0.26</td>
<td>0.29</td>
<td>0.32</td>
</tr>
<tr>
<td>Working Capital</td>
<td>-0.03</td>
<td>0.02</td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Other assets</td>
<td>0.085</td>
<td>0.081</td>
<td>0.075</td>
<td>0.095</td>
<td>0.054</td>
<td>0.032</td>
</tr>
<tr>
<td>Total assets</td>
<td>3.4</td>
<td>3.0</td>
<td>2.6</td>
<td>3.0</td>
<td>2.7</td>
<td>2.5</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>1.67</td>
<td>1.3</td>
<td>0.93</td>
<td>0.84</td>
<td>0.69</td>
<td>0.57</td>
</tr>
<tr>
<td>EBIT</td>
<td>0.67</td>
<td>0.69</td>
<td>0.63</td>
<td>0.11</td>
<td>0.91</td>
<td>0.20</td>
</tr>
<tr>
<td>Equity at Market</td>
<td>1.64</td>
<td>1.38</td>
<td>1.13</td>
<td>1.28</td>
<td>1.28</td>
<td>1.26</td>
</tr>
<tr>
<td>Total Debt</td>
<td>1.77</td>
<td>1.62</td>
<td>1.48</td>
<td>1.73</td>
<td>1.44</td>
<td>1.19</td>
</tr>
<tr>
<td>Sales</td>
<td>1.65</td>
<td>1.49</td>
<td>0.84</td>
<td>0.81</td>
<td>0.82</td>
<td>0.73</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>0.98</td>
<td>0.79</td>
<td>0.82</td>
<td>0.69</td>
<td>0.63</td>
<td>0.52</td>
</tr>
<tr>
<td>Account Receivable</td>
<td>0.19</td>
<td>0.34</td>
<td>0.15</td>
<td>0.19</td>
<td>0.23</td>
<td>0.28</td>
</tr>
<tr>
<td>Cash</td>
<td>0.0025</td>
<td>0.0020</td>
<td>0.024</td>
<td>0.006</td>
<td>0.009</td>
<td>0.007</td>
</tr>
<tr>
<td>Current Tax payable</td>
<td>0.232</td>
<td>0.236</td>
<td>(0.001)</td>
<td>0.004</td>
<td>0.41</td>
<td>0.051</td>
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Depreciation and Amortization

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<tr>
<td></td>
<td>0.392</td>
<td>0.359</td>
<td>0.329</td>
<td>0.314</td>
<td>0.314</td>
</tr>
<tr>
<td></td>
<td>0.251</td>
<td></td>
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</table>

Gross Margin in $

<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>0.67</td>
<td>0.69</td>
<td>0.02</td>
<td>0.11</td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>0.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Enron’s financial figures (in hundred billion $), as extracted from the U.S. SEC EDGAR database

The next step is to calculate the Z-Score for each of the five years as shown in table 2. The Altman’s Discriminant Function Algorithm, Z-Score is given by the following formulae:

\[ Z = (1.2 \times X_1) + (1.4 \times X_2) + (3.3 \times X_3) + (0.6 \times X_4) + (1.0 \times X_5) \]

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</thead>
<tbody>
<tr>
<td>X1 = Working Capital/Total Assets</td>
<td>-0.03/3.4</td>
<td>0.02/3</td>
<td>-0.02/2.6</td>
<td>-0.02/3</td>
<td>-0.01/2.7</td>
</tr>
<tr>
<td></td>
<td>= -0.008</td>
<td>= 0.006</td>
<td>= -0.007</td>
<td>= -0.009</td>
<td>= -0.003</td>
</tr>
<tr>
<td>X2 = Retained Earnings/Total Assets</td>
<td>1.6/3.4</td>
<td>1.3/3</td>
<td>0.93/2.6</td>
<td>0.84/3</td>
<td>0.69/2.7</td>
</tr>
<tr>
<td></td>
<td>=0.47</td>
<td>=0.433</td>
<td>=0.357</td>
<td>=0.28</td>
<td>=0.255</td>
</tr>
<tr>
<td>X3 = EBIT/Total Assets</td>
<td>0.67/3.4</td>
<td>0.69/3</td>
<td>0.63/2.6</td>
<td>0.11/3</td>
<td>0.91/2.7</td>
</tr>
<tr>
<td></td>
<td>=0.197</td>
<td>=0.23</td>
<td>=0.242</td>
<td>=0.036</td>
<td>=0.337</td>
</tr>
<tr>
<td>X4 = Market Value of Equity/Book Value of Total</td>
<td>1.64/1.77</td>
<td>1.38/1.62</td>
<td>1.13/1.48</td>
<td>1.28/1.73</td>
<td>1.28/1.44</td>
</tr>
<tr>
<td></td>
<td>=0.926</td>
<td>=0.851</td>
<td>=0.763</td>
<td>=0.739</td>
<td>=0.888</td>
</tr>
<tr>
<td>X5 = Net Sales/Total Assets</td>
<td>1.65/3.4=0.485</td>
<td>1.49/3=0.496</td>
<td>0.84/2.6=0.323</td>
<td>0.81/3=0.27</td>
<td>0.82/2.7=0.303</td>
</tr>
<tr>
<td>Z = Overall Index of Corporate Health</td>
<td>1.2(-0.008) +1.4(0.47) +3.3(0.197) +0.6(0.926) +1.0(0.485) =2.3391</td>
<td>1.2(0.006) +1.4(0.433) +3.3(0.23) +0.6(0.851) +1.0(0.496) =2.379</td>
<td>1.2(-0.007) +1.4(0.357) +3.3(0.242) +0.6(0.763) +1.0(0.323) =2.0708</td>
<td>1.2(-0.009) +1.4(0.28) +3.3(0.036) +0.6(0.739) +1.0(0.27) =1.2134</td>
<td>1.2(-0.003) +1.4(0.255) +3.3(0.337) +0.6(0.888) +1.0(0.303) =2.3014</td>
</tr>
</tbody>
</table>

Table 4: Altman’s Z-Score for Corporate Bankruptcy Prediction
According to Altman (1968), the general interpretation of Z-Score is “the lower the score, the higher the chances of bankruptcy”. Particularly, a Z-score above 3 indicates a company to be healthy and unlike to go bankrupt. Companies scoring between 1.8 and 3 however are taken to lie in the grey area, with respect to their bankruptcy possibilities.

Russ et al., (2009) also explain that the Altman z-score is used as a measure of financial distress. As such, calculations on table 3 show that Enron’s Z-Score was well below the ‘distress’ level (1.2134 in 1998) and although this increased slightly in 1999 and 2000 (2.0708 and 2.379), the Z-Score still remained much lower than the expected z-score for the grey area.

Messod Beneish

The work of Messod Beneish is considered mostly as a powerful adjunct of Altman Discriminant Modified Z-Score formula, rather than an independent evaluation method which could stand alone. In particular, the added value of that work is that it examines other indicators of financial health, such as time in receivables, sales margins, asset quality indicators, etc. (Pustylnick, 2009). As in Altman’s Z-score, the main goal of Beneish was to discover fraud in the financial statements. The indicators needed to do this job are given below:

1. \( \text{Days Sales in Receivables} = \frac{\text{Receivables at the End of the Period}}{\text{Average Daily Sales}} \)

This sales ratio measures whether receivables and revenues are in or out of balance in two consecutive reporting periods. A material increase in the index could indicate company’s receivables are phony (Wells, 2001). As such,

\[
\text{Days Sales in Receivables}_{2001 \text{ vs. 2000}} = \frac{\frac{\text{Accounts receivable}_t}{\text{Sales}_t}}{\frac{\text{Accounts receivable}_{t-1}}{\text{Sales}_{t-1}}} = \frac{0.19}{1.65} = 0.12 \approx 0.500
\]

Similarly,

\[
\text{Days Sales in Receivables}_{2000 \text{ vs. 1999}} = 1.280 \quad \text{Days Sales in Receivables}_{1999 \text{ vs. 1998}} = 0.760
\]
Days Sales in Receivables = 0.835
1998 vs. 1997

Days Sales in Receivables = 0.731
2000 vs. 1999

Gross Margin = Revenue – Cost of Goods Sold Revenue / Revenue

When this ratio is less than 1:1, there are indications for declining operational efficiency which may
give rise to fraudulent activity (Nugent, 2003).

\[
\text{Gross Margin} = \frac{\text{Sales}_{t-1} - \text{Cost of sales}_{t-1}}{\text{Sales}_{t-1}} = 1.15
\]

Gross Margin = 0.049
2000 vs. 1999

Gross Margin = 0.049
2000 vs. 1999

Gross Margin = 6.43
1999 vs. 1998

Gross Margin = 1.56
1998 vs. 1997

Gross Margin = 1.24
1997 vs. 1996

2. Asset Quality = Total Assets – PP&E / Total Assets

The main purpose of this index is to find disproportionate amount of Goodwill and Investment portions
in the statements in comparison to revenue (Pustylnick, 2009). When the ratio is greater than 1:1, it indicates
that costs are being capitalized and deferred.

\[
\text{Asset Quality} = \frac{1 - \frac{\text{Current assets}_{t} + \text{Net fixed assets}_{t}}{\text{Total assets}_{t}}}{1 - \frac{\text{Current assets}_{t-1} + \text{Net fixed assets}_{t-1}}{\text{Total assets}_{t-1}}} = 0.925
\]

Asset Quality = 0.964
2000 vs. 1999

Asset Quality = 0.903
1999 vs. 1998

Asset Quality = 1.55
1998 vs. 1997

Asset Quality = 2.00
1998 vs. 1997
3. **Sales Growth** = \( \frac{Sales_{t}}{Sales_{t-1}} \)

This index shows the percentage of current sales to previous year’s sales. A potential increase beyond certain percentage may cause a suspicion.

\[
Sales \text{ Growth} = \frac{Sales_{2001}}{Sales_{2000}} = 1.320 \\
Sales \text{ Growth} = 0.580 \quad \quad \quad Sales \text{ Growth} = 1.030 \\
\text{2000 vs. 1999} \quad \quad \text{1999 vs. 1998} \\
Sales \text{ Growth} = 0.980 \quad \quad \quad Sales \text{ Growth} = 1.120 \\
\text{1998 vs. 1997} \quad \quad \text{1997 vs. 1996}
\]

4. **Total Accruals to Total Assets** = \( \frac{\text{Working Capital} - \text{Depreciation and Amortization}}{\text{Total Assets}} \)

This index measures the changes in non cash working capital to total assets; while a potential growth of that numbers by year to year, indicates that goodwill numbers in the financial statements of the company could be manipulated.

\[
\text{Total Accruals to Total Assets} = \frac{\text{Change in working capital} - \text{change in cash} - \text{change in current tax payable} - \text{depreciation and amortization}}{\text{Total Assets}} = 0.1290 \\
\text{2001 vs. 2000}
\]

Similarly,

\[
\text{Total Accruals to Total Assets} = -0.178 \quad \text{(2000 vs. 1999)} \\
\text{Total Accruals to Total Assets} = -0.116 \quad \text{(1999 vs. 1998)} \\
\text{Total Accruals to Total Assets} = -0.094 \quad \text{(1998 vs. 1997)} \\
\text{Total Accruals to Total Assets} = -0.090 \quad \text{(1997 vs. 1996)}
\]

**Nonfinancial Measures**

Empirical studies have shown that nonfinancial measures can be effectively used to assess the likelihood of fraud. According to a recent study made by Brazel et al. (2009), the difference between
financial and nonfinancial performance is significantly greater for firms that committed fraud than for their non-fraud competitors.

Regarding Enron Corp., there is a range of issues that if it had received more attention, the company's failure would not have happened. That includes measures of consumer or worker satisfaction, product or service quality, successful innovation, education and experience of the workforce and management, and a variety of other non-financial indicators (Litan, 2002). All these measures should be related with Enron’s ability to generate earnings or cash flow and should be compared to the figures in financial statements.

**Analysis of the facts and issues**

**Altman Z-Score Findings**

Analyzing the results of Altman’s Z-score for Enron Corp. as calculated above in this paper, it can be easily discerned that the company had a Z-score of 1.2134 in 1998, much lower than the expected Z-score for the grey area for bankruptcy based on the Altman model.

<table>
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<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-score</td>
<td>2.3391</td>
<td>2.379</td>
<td>2.0708</td>
<td><strong>1.2134</strong></td>
<td>2.3014</td>
</tr>
</tbody>
</table>

Table 5: Altman’s Z-score for Enron Corp.

The Z-score of 1998 was the worst score for Enron from 1997 to 2001, supporting the fact that the fraud had already taken place within Enron and should be considered as a great threat by the auditors regarding the future of the company. Although the Z-score increased slightly between 1999 and 2001, it still remained at the grey area, well below the “healthy” zone (above 3).

**Messod Beneish Findings**

**Days sales in receivable index:**

Beneish determined that companies that had not manipulated sales had a mean index of 1.031; companies that had manipulated sales had a mean index of 1.465, a 42% increase (Wells, 2001). As such, in
Enron’s case, the closest figure to the 1.460 was recorded in year 2000, of 1.280, noting a material increase in the index regarding the year 1999 which was 0.760.

**Gross Margin Index:**

Given that the mean figure of manipulators is 1.193 (Harrington, 2005), the Enron’s gross margin index is exceeding that limit by the year 1997, making the gross margin to increase at a very fast rate to peak in 1999. In this year, the figure is over five times bigger than 1.190, indicating the biggest earning manipulation in Enron’s history.

**Asset Quality Index:**

According to Harrington (2005), companies that manipulated earnings had a mean of 1.254. As such, the auditors must have been alerted to the 1997-1998 figures, as long as the recorded figures of 2.00 and 1.55 is greater than 1:1, indicating possible manipulation in the financial figures.

**Sales Growth Index:**

The finding of that index is an example of how the ratio might give a false signal. Companies that overstated revenue had a mean DSRI of 1.465 much higher than Enron’s highest figure in 1997 of 1.12. In fact, Enron's was lower even from the median for non-manipulating companies (1.130), as shown by the figures.

**Total Accruals to Total Assets:**

The manipulation was obvious since 1997, when the figure was (0.09), much higher than the mean index of manipulators (0.031). The growth of that ratio at a very fast rate to peak in 2001 (0.1290) strongly indicates the manipulation of the financial statements.

**Nonfinancial Measures findings**

The extremely high rate of increase in Enron’s revenue should have been backed by some significant productive changes in business operations. However, operational changes did not follow that route. Unlike,
the company’s strategy to diversify recorded significant losses in the new areas and, as Kroger (2004) refers; the auditors should have been alerted much earlier by that fact.

**Conclusions**

As a conclusion, almost all the tools employed in this research indicate that Enron’s difficulties were apparent a lot earlier than 2001. Particularly, both financial and nonfinancial measures were yelling about the upcoming collapse within Enron. The paper used Altman Z-score as well as the Beneish model in order to evaluate the financial statements of Enron.

The Z-score of 1998 showed that Enron was in well below the distress zone in 1997, bankrupted in 1998, and finally remained at the grey area between 1999 and 2001. The results of the use of Beneish’s model provided fascinating inferences showing that Enron had been aggressively managing earnings in the previous reporting periods. Almost all ratios (SGI, GMI, AQI, DSRI, TATA) raised red flags but no one manage to detect fraud. Similarly, the nonfinancial measures located disproportionately increased turnover in relation to organizational changes.

**Recommendations**

In a world where business executives are likely to find whatever ways and means possible to earn the best possible rewards, it is rather difficult to timely predict possible fraudulent activities by analysis of financial statements. History after Enron has shown that the lessons learned were not enough to prevent toward scandals such as Lehman, WorldCom and Madoff.

However, this fact should not be a break to the globally made efforts to prevent fraud. In fact, it is important to consider fraud detection in the design of audit programs, university courses or other similar studies used for the establishment of both the scientific background and the conformation of moral values among future employees.
References


Enron. (2000 a, March, 30th). Form 10-K.


February 4, 2014 www.thinkingfinance.info Dimitrios V. Siskos


Obiri, C. (2011). Enron: Could the Fraud Have Been Detected Sooner? Available at SSRN:

http://ssrn.com/abstract=1964770 or http://dx.doi.org/10.2139/ssrn.1964770


Appendices

Appendix 1\(^8\) - Enron Quarterly and Annual Figures

<table>
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<td></td>
<td>Quarter</td>
<td>Quarter</td>
<td>Quarter</td>
<td>Quarter</td>
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<tr>
<td>Net Income</td>
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<td>235</td>
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<td>Cumulative Net Income</td>
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<td>Net Cash Flow From Operating Activities</td>
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<td>Net Income</td>
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<td>190</td>
<td>359</td>
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<tr>
<td>Cumulative Net Income</td>
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<td>893</td>
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<td>Net Cash Flow From Operating Activities</td>
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<td>Cumulative Net Income</td>
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<td>Net Cash Flow From Operating Activities</td>
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\(^8\) Data Source: (Enron, 2000 a)
### Appendix 2 - Enron’s executives and corporate chiefs accused

#### Sentencing Enron’s Executives...
Most of Enron’s former top executives have been sentenced.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Position</th>
<th>Conviction Date</th>
<th>Sentencing Length</th>
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</thead>
<tbody>
<tr>
<td>Jeffrey K. Skilling</td>
<td>Chief executive</td>
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<td>24.3 years</td>
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<tr>
<td>Kenneth L. Lay</td>
<td>Chairman, chief executive</td>
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<td>Convicted</td>
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<td>Andrew S. Fastow</td>
<td>Chief financial officer</td>
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<td>Pleaded Guilty</td>
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<tr>
<td>Ben F. Glisan Jr.</td>
<td>Treasurer</td>
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<td>5 years</td>
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<tr>
<td>David W. Delahay</td>
<td>Energy services chief</td>
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<tr>
<td>Richard A. Causey</td>
<td>Chief accounting officer</td>
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<td>2.5 years</td>
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#### ...And Other Corporate Chiefs
Jeffrey K. Skilling's sentence is among the longest given to executives convicted of wrongdoing.

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<td>John J. Rigas</td>
<td>Adelphia Communications</td>
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<td>Dennis L. Kozlowski</td>
<td>Tyco International</td>
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<tr>
<td>Martin L. Gross</td>
<td>Frito Lay</td>
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<td>Pleaded Guilty</td>
</tr>
<tr>
<td>Samuel D. Waksal</td>
<td>InClone Systems</td>
<td></td>
<td>Pleaded Guilty</td>
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<tr>
<td>Sanjay Kumar</td>
<td>CA (Computer Associates)</td>
<td></td>
<td>Pleaded Guilty</td>
</tr>
</tbody>
</table>

*Minimum: maximum is 25 years

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*Data Source: (NY Times, 2006)